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ABSTRACT

This report summarizes each public program area in higher education in Illinois to be reviewed during the 1996-97 academic year and identifies the special issues pertinent to each. These programs include agriculture, engineering-related technologies, mechanics and repair, home economics, multi- and inter-disciplinary studies, natural resources, philosophy and religion, psychology, transportation, general liberal arts, and general liberal arts programs including the Board of Governors Bachelor of Arts program, an individualized program providing adults an opportunity to complete a Bachelor's degree. The study found an increase in enrollment in baccalaureate programs in agriculture, natural resources and psychology; a decline in enrollment and degrees granted in baccalaureate programs in engineering technologies, home economics, mechanics and repair and interdisciplinary studies; a low demand for philosophy and religion courses at the Bachelor's level; and slight risk in baccalaureate degrees in liberal arts. Trends in these programs at graduate level as well as statistics on gender, race, and foreign students, and cost effectiveness of all programs at all levels are noted. (CK)

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STATE OF ILLINOIS
BOARD OF HIGHER EDUCATION

STATEWIDE ANALYSIS FOR PUBLIC UNIVERSITY PROGRAM REVIEW IN 1996-97:
SYNOPSIS

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STATE OF ILLINOIS
BOARD OF HIGHER EDUCATION

STATEWIDE ANALYSIS FOR PUBLIC UNIVERSITY PROGRAM REVIEW IN 1996-97:
SYNOPSIS

The Board of Higher Education has statutory responsibility to "review periodically all existing programs of instruction, research and public service at state universities and to advise the appropriate board of control if the contribution of each program is not educationally and economically justified." Program review is an important component of the Priorities, Quality, and Productivity (P•Q•P) initiative at both the state and campus levels. At the campus level, the primary focus of program review is the improvement of the quality and productivity of individual academic programs and units of research and public service. Program review informs the setting of campus priorities and the allocation of resources. At the state level, program review focuses on such statewide policy issues as access and capacity, occupational supply and demand, and program costs and instructional productivity. Program review informs the Board's on-going program approval, grant allocation, and budget development processes, as well as serving a key role in the P•Q•P initiative.

Although public universities have reviewed individual academic programs for more than 25 years, the statewide public university program review reporting process was revised in 1993-94 so that all universities report on the reviews of similar programs in the same year within an eight-year cycle. The Board staff also prepares an analysis of program indicators and identifies any statewide issues that need to be addressed in each review a year prior to the universities' reviews.

This report provides a brief synopsis of each program area to be reviewed during the 1996-97 academic year and identifies the special issues pertinent to each program reviewed. The programs to be reviewed this year are exceptionally diverse: agriculture, engineering-related technologies, home economics, multi-disciplinary studies, natural resources, philosophy and religion, and psychology, as well as the general liberal arts and studies programs such as individually designed majors and the Board of Governors Bachelor of Arts programs. A more complete analysis, including data tables, for each program was provided to each public university and is available to others on request.

Agriculture

Access and Capacity

Four public universities offer baccalaureate programs in agriculture, three offer master's programs, and the University of Illinois at Urbana-Champaign offers doctoral programs. Despite differing numbers of programs, all four public universities offer similar specialties in agribusiness or agricultural economics; animal, crop or plant, soil, and horticultural sciences; and agriculture education. Baccalaureate enrollment increased by 10 percent from 1,979 in fall 1991 to 2,173 in fall 1995, while the number of degrees conferred increased by seven percent from 489 in fiscal year 1991 to 525 in fiscal year 1995. Enrollment and degrees conferred shifted among specialties, holding steady or declining slightly in agribusiness and agricultural economics and increasing in agricultural sciences (animal, plant, and soil science). Nearly all bachelor's degree graduates are white; a third are women.

Master's enrollment declined by 26 percent, although the number of degrees granted held steady at an average of 120 per year. Doctoral enrollment increased by 23 percent, while the number of degrees granted was constant at an average of 45 per year during this period. Enrollment and degree trends at the graduate level are the opposite of those at the baccalaureate level, with a significant

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increase in doctoral enrollment in agricultural economics and declines in master's enrollment in animal science and agronomy. Half of master's degree graduates are white, and a third are foreign students, while the majority of doctoral degree recipients are foreign students.

In light of the extremely low number of Black and Hispanic graduates at all levels, the universities are asked to evaluate their early outreach efforts, admissions criteria and processes, financial aid availability, support services, and educational climates for recruiting, retaining, and graduating Black and Hispanic students. At the graduate level, the high proportion of foreign students is of particular concern. Considering the high cost of graduate education, especially at the doctoral level, the two universities with a majority of foreign graduates will need to make a strong case that it is in the state's interest to continue to support the programs. The sources of financial support for enrolled foreign students, the location and type of employment of foreign graduates, and the contributions these students make to the program and the university should be included in this evaluation.

Occupational Supply and Demand

Employment projections for both farm and non-farm agriculture-related occupations in Illinois are generally better than national projections. Recent baccalaureate agriculture graduates report employment at rates equal to or slightly better than their peers in other disciplines. At present, student and occupational demand appears to be in balance, suggesting little need to either increase or decrease enrollment overall. Of concern, however, is whether the balance among agricultural specialties is appropriate. The universities are asked to review the array of specializations offered for possible realignment with the specific occupations that are growing--or declining--for graduates at each program level regionally, statewide, and nationally.

Costs and Instructional Productivity

At the lower-division baccalaureate level, the average cost per credit hour in agriculture was higher than the all-discipline average to begin with and increased at a greater rate between fiscal years 1992 and 1995. This increase was due to a decline in credit hours that was not matched by a comparable decline in faculty staff-years. Costs per credit hour at the upper-division undergraduate level increased slightly, and costs decreased slightly at the master's level, so that by fiscal year 1995, the cost per credit hour in agriculture at both levels was only slightly higher than the all-discipline average at each level. At the doctoral level, the average cost per credit hour in agriculture continues to be lower than the all-discipline average cost per doctoral level credit hour. At both graduate levels, however, the credit hours per faculty staff-year and costs per credit hour differ significantly among institutions. In their 1996-97 program reviews, the universities are asked to examine their staffing patterns at all levels and their costs particularly at the graduate level to assure an optimum balance between quality and productivity.

Engineering-related Technologies

Access and Capacity

Engineering-related technologies include programs in architectural, civil, construction, electrical, environmental, industrial, manufacturing, welding, quality control, aeronautical, and automotive engineering technologies and electronics management. During fiscal year 1994, 3,130 engineering-related degrees were awarded: 60 percent were certificates or associate degrees, 37 percent were bachelor's degrees, and three percent were master's degrees. Community colleges awarded 48 percent of the certificate and associate degrees, and independent institutions awarded 49 percent.

A total of 231 certificate and 163 associate degree programs are offered in Illinois. Of this total, community colleges offer all but one certificate program and 93 percent of the associate degree

programs. Southern Illinois University at Carbondale offers associate degree programs in architectural, electronics, and construction technology--all of which will be eliminated in the reorganization of the College of Technical Careers.

There are 21 baccalaureate degree programs in engineering technologies in Illinois--15 at public universities and six at independent institutions. Seven programs are in electrical and 10 in industrial technology. Enrollment and degrees granted have declined in the past five years, with the number of degrees granted in electrical technology declining by 26 percent and in industrial technology by eight percent. Four public universities offer master's degree programs in manufacturing or industrial technology. While enrollments increased over the past five years in three of the four programs, overall enrollment and degrees conferred decreased by five and seven percent, respectively.

Occupational Supply and Demand

The manufacturing industry is rapidly changing, with many engineering-related jobs now requiring more education. The changes occurring in the field have led to the need for baccalaureate-degreed persons to manage and meet new demands. Jobs in this field are diverse--ranging from welding and computer maintenance technicians to aircraft maintenance and automotive technicians to industrial engineering technicians. The U.S. Department of Labor's Bureau of Labor Statistics projections for 1992-2005 indicate that some engineering-related technology jobs requiring on-the-job training or certificates are declining and that the number of jobs for machine tool operators will decline by 19,000 and for welding machine operators by 17,000 nationally. The Illinois Department of Employment Security projects that employment in engineering technician positions will increase approximately 18 percent through the year 2005, with 937 average annual job openings in Illinois. The Illinois Occupational Information Coordinating Committee reported in 1995 that current supply and demand is in balance except for a slight supply surplus in industrial technology.

At the certificate and associate degree levels, enrollments and degrees decreased in electrical, welding, work measurement, coal mining technology, and general engineering technology, but rose in construction, industrial, automotive, and aeronautical technologies. The Illinois Community College Board recommended further capacity adjustments and program reform, based on national labor market information and changes in the industry. Independent institutions also eliminated certificate and associate degree programs in response to decreasing demand from industry and students, while public universities eliminated or are in process of eliminating three associate degree programs.

Program enrollments and degrees granted in bachelor's and master's engineering technology programs have decreased, yet occupational demand appears to be in balance in all but industrial technology. The need for management and advanced technical skills resulted in new baccalaureate programs, such as the B.S. in Electronics Management and B.S. in Automotive Technology degrees at Southern Illinois University at Carbondale. Public universities should continue to closely monitor the occupational demand in the various areas of engineering technologies. As part of their reviews, universities should examine graduate follow-up surveys and consult with employers of graduates to determine if the programs and curricula are serving regional and state needs and adapting to changes in the field.

Home Economics

Access and Capacity

The field of home economics includes a variety of subfields: family and consumer economics, child development, foods and nutrition, clothing and textiles, and family housing and furnishings, as well as home economics teacher preparation. Over the past five years, seven public universities offered 21 bachelor's programs, five offered master's programs, and the University of Illinois at Urbana offered the only doctoral programs in this field. Six bachelor's programs were discontinued,

and the University of Illinois at Urbana plans to discontinue two more and merge two others with related programs as part of its restructuring of the college of agriculture. Public university bachelor's enrollment declined by 24 percent during this period, although the public universities still accounted for 85 percent of the baccalaureate enrollment in fall 1995 at 1,863. The number of degrees granted declined by six percent, with public universities continuing to account for 89 percent of the degrees granted in fiscal year 1995 at 690. Master's enrollment and graduates increased, while doctoral enrollment and graduates declined. Public universities awarded 90 percent of the master's degrees in fiscal year 1995 at 83, and the only doctoral degree.

Ten independent institutions offered bachelor's and three offered master's programs in home economics. Five bachelor's programs were new since 1990, and two were eliminated. Fall enrollment increased by more than 100 percent to 332 in fall 1995, and the number of degrees conferred increased by 53 percent to 89 in fiscal year 1995. Two of the master's programs are new, with one yet to report enrollments or degrees conferred. The other two programs are small, reporting a total fall 1995 enrollment of 38, and five degrees awarded in fiscal year 1995.

Occupational Supply and Demand

Despite declines in bachelor's enrollment and degrees granted, student demand appears to be greater than the occupational demand for baccalaureate-prepared employees, suggesting a need to continue to downsize. At the master's level, fall 1995 enrollment averaged 55 per university but only 23 per program due to the small size of one of the three programs at Northern Illinois University and four of the six programs at the University of Illinois at Urbana. An average of 13 degrees per university, but only seven per program, were awarded in fiscal year 1995. The level of aggregation in enrollment, degrees, and occupational demand data masks differences in demand among specialties.

Costs and Instructional Productivity

While the cost per credit hour in home economics is at or below the all-discipline average cost per credit hour, the rate of increase at the upper-division and graduate levels in home economics exceeds the all-discipline average growth rate. Given the rising costs and the small size of several of the master's programs, there is little need for a university to offer simultaneously a general degree program and separate programs in various specialties. There is also little need for each university to duplicate all specialties whether as options within a single program or as separately approved programs. In their reviews, the universities are asked to evaluate the array of specializations or options offered for realignment with the specific occupations and opportunities that are emerging and to present plans for downsizing (or phasing out) those specialties in which student and occupational demand is declining. In addition, each university is asked to identify only one or two specialties at the master's level in which it can achieve the highest quality and to eliminate the remaining specialties offered, whether as options or separately approved programs.

Mechanics and Repair

Access and Capacity

The field of mechanics covers a wide range of employment, including repairers and installers of communication and electrical equipment and industrial machines and all types of vehicles and mobile equipment. Most of the more than 200,000 mechanics job openings in Illinois require on-the-job training or certificate or associate degree training. In fall 1994, 2,025 degrees in mechanics and repair were awarded: 1,276 certificates and 750 associate degrees, representing 98 percent of the total awards. Community colleges play the largest role in providing programs in this field. Public universities and independent institutions offer programs in both automotive and aviation maintenance technology. Since 1991, statewide enrollment and degrees declined in all categories, except automotive technology in which the number of certificates and associate degrees granted by public universities and

independent colleges increased by 35 percent to 74 in fiscal year 1995. Bachelor's enrollment and degrees granted in aviation decreased.

Public and independent institutions offered two certificate, six associate, and six bachelor's programs in the field. Independent institutions eliminated or are in the process of phasing out programs in aviation. Parks College of St. Louis University is discontinuing operations in Illinois, and none of its five programs reported enrollments or degrees awarded in the past year. Lewis University and Moody Bible Institute offer the remaining active programs in aviation maintenance technology.

Southern Illinois University at Carbondale and the University of Illinois at Urbana-Champaign are the only public universities that offer programs in mechanics. As part of the P•Q•P initiative, Southern Illinois University at Carbondale eliminated its A.A.S. in Avionics Technology and plans to eliminate the A.A.S. in Automotive Technology and the A.A.S. in Aviation Maintenance Technology as it implements the B.S. in Automotive Technology (an engineering technology program) and the B.S. in Aviation Technologies. The University of Illinois eliminated its Certificate in Aviation Electronics.

Occupational Supply and Demand

Statewide supply and demand for mechanics, installers, and repairers shows a balance or surplus, depending upon the specific job. Automotive mechanics are among the 50 occupations in Illinois with the largest number of job openings each year due to the growing complexity of automotive technology. Public universities reduced the number of certificate and associate degree programs in mechanics or are in the process of eliminating programs. However, community colleges continue to offer the majority of programs and supply the most graduates. Occupational demand for automotive technology graduates at the associate level appears to be in balance, but the need for a more highly skilled workforce in automotive technology lends support for an engineering-related and management-oriented bachelor's program.

Although nationally the need for aircraft mechanics is expected to grow slower than average, job opportunities are expected to be better than average in Illinois. Changes in defense spending and downsizing of the military are expected to increase the number of persons available. The aerospace industry indicates a need for a more highly trained workforce that can manage hardware, troubleshoot systems, and maintain aircraft equipped with advanced technology. With the continuing decline in aviation maintenance graduates statewide and the elimination of several independent and public university programs, occupational supply and demand should be monitored at the state level.

Program Centrality and Costs

Mechanics undergraduate programs at public universities have low program demand and low centrality (less than 50 percent of credit hours are taken by non-majors), accompanied by high costs. Program costs increased between 1991 and 1995 as a result of declining enrollments and number of credit hours produced.

Multi- and Inter-Disciplinary Studies

Access and Capacity

Multi- and interdisciplinary studies programs are alternatives to traditional disciplinary majors and focus on a problem, theme, or issue that cuts across two or more academic disciplines. Many of these programs were developed in the 1970s. There was a concurrent movement to infuse a broad-based interdisciplinary perspective into general education requirements. Since then, a number of interdisciplinary areas evolved into generally accepted fields, such as environmental sciences and urban studies. The recent development of freshman interest groups, learning communities, and other

reforms in undergraduate education have also served to meet some of the original intentions of interdisciplinary and multidisciplinary programs.

Included in this category are interdisciplinary science and mathematics, interdisciplinary computer science and mathematics, gerontology, medieval studies, and career-oriented interdisciplinary studies. There were 96 multi/interdisciplinary programs in Illinois in the early 1980s. Since then, more than a third, or 36 programs, were eliminated--21 since 1990. The majority of programs are offered by private institutions, while only nine programs are offered by seven public universities. Public universities offer three bachelor's programs in interdisciplinary mathematics and computer science, two career-oriented bachelor's programs, and four master's programs in gerontology. Eastern Illinois University offers three programs, and the three campuses of the University of Illinois, Southern Illinois University at Carbondale, and Western Illinois University each offer one active program. Three programs, including one doctoral program, were eliminated as part of the P-Q-P initiative. Southern Illinois University at Carbondale also proposes eliminating its B.S. in Advanced Technical Studies as part of its reorganization of the College of Technical Careers and implementation of five recently approved bachelor's programs in areas previously included in the B.S. in Advanced Technical Studies.

Over the past five years, enrollment decreased statewide in all multi/interdisciplinary study areas, except for master's programs in gerontology in which enrollment rose 47 percent. In fall 1995, 147 out of 204 master's students were enrolled in gerontology programs, with 60 graduates reported in fiscal year 1995. At the undergraduate level, the largest programs are in the career-oriented and general interdisciplinary studies area. Of the more than 3,000 baccalaureate enrollments, 70 percent were enrolled in the College of St. Francis B.S. in Health Arts, which is offered throughout the U.S. National-Louis University's B.A. in Applied Behavioral Sciences, the second largest program, enrolled 250. Both public university career-oriented programs (Eastern Illinois University and Southern Illinois University at Carbondale) also reported enrollments over 200.

The number of degrees awarded in fiscal year 1995 was 1,277, a 15 percent increase since 1991. The College of St. Francis and National-Louis University programs graduated the highest number of students at over 1,000 students annually. The number of bachelor's degrees awarded increased in interdisciplinary sciences. Declines occurred in graduate degrees awarded in interdisciplinary science and general interdisciplinary studies and in undergraduate degrees in mathematics and computer science, gerontology, and medieval studies.

Occupational Supply and Demand

No specific occupational information is available for the graduates of these diverse multi- and interdisciplinary programs. The public university baccalaureate follow-up surveys of the 1988 and 1991 graduates indicated that 42 percent of graduates five years after graduation and 25 percent of graduates ten years after graduation were employed as computer programmers and systems analysts, reflecting the relatively high proportion of graduates from the interdisciplinary mathematics and computer science programs. Fifty-four percent of interdisciplinary graduates five years after graduation were employed in business and industry, 16 percent in professional firms, and nine percent by government, while ten years after graduation these proportions shifted, with fewer reporting employment in professional firms, nine percent employed in health, and nine percent in the armed services. Of those responding to the survey, 85 percent reported holding a job closely related to their major. Public universities have established a niche in graduate programming in gerontology. With the aging of the population and the special needs of the aged, the role of gerontology in the wider context of health care should be addressed in the gerontology program reviews.

Costs, Centrality, and Productivity

The multi/interdisciplinary studies field exhibited low program demand and high centrality in the 1992 statewide analysis of public university undergraduate programs for the P•Q•P initiative. A majority of the credit hours in interdisciplinary programs are taken by majors in other fields. The average cost per credit hour in interdisciplinary studies is below the all-disciplines average, and grew at a rate lower than the all-discipline costs, except at the master's level. While the number of credit hours declined at all levels, the decline at the master's level was not matched by a corresponding decrease in faculty staff-years, which increased by 41 percent, resulting in substantial increases in costs per credit hour. Costs vary considerably among universities. As part of their program reviews, those universities with costs above the average should report steps taken to reduce costs. In their reviews, universities should also examine the purpose of interdisciplinary programs within their mission, examine those programs with low enrollment and degree productivity for long-term viability and the types of occupations held by program graduates.

Natural Resources

Access and Capacity

The natural resources category includes two distinctly different programs: forestry and environmental science. Bachelor's and master's in forestry are offered only at Southern Illinois University at Carbondale and the University of Illinois at Urbana-Champaign. Enrollment and degrees granted increased at both levels in the past five years, with 66 bachelor's degrees and 27 master's degrees awarded in fiscal year 1995.

Thirteen independent institutions and Northeastern Illinois University offer bachelor's programs in environmental science. Three public universities offer master's programs, and one independent institution developed a new program that has not yet reported enrollment. The only doctoral program is a small alternative offered by the University of Illinois at Urbana through its civil engineering program. Bachelor's enrollment increased by 75 percent to 249 in fall 1995, with the number of graduates increasing by 370 percent to 47 in fiscal year 1995, due primarily to seven new independent institution programs. Master's enrollment increased by 26 percent to 216 in fall 1995, due almost solely to the increase at the University of Illinois at Springfield. The number of degrees conferred increased by 182 percent to 48 in fiscal year 1995, with all three public university programs more than doubling the number of graduates.

Occupational Supply and Demand

Student demand in forestry appears to be outstripping occupational demand in Illinois by about eight to one. Although few jobs in environmental science require a bachelor's degree, graduates may be preparing for graduate school in related areas just as occurs in other arts and sciences disciplines. In their 1996-97 program reviews, the universities are asked to identify the specific post-degree employment or further education of each graduate in fiscal years 1995 and 1996 to determine if the programs and their curricula are appropriately serving students' career objectives.

Costs and Instructional Productivity

Average costs per credit hour in natural resources at all levels are lower than the all-discipline average cost per credit hour. In fiscal year 1995, there was a stark contrast between the credit hours per faculty staff-year at the master's level between the environmental science programs and the forestry programs. This contrast is also reflected in average costs of \$180 per credit hour in environmental science compared with \$411 per credit hour in forestry. In light of these contrasts, the universities are asked to examine their priorities on graduate education in this field within their missions and the adequacy of resources devoted to it. The University of Illinois at Urbana is also

asked to analyze the substantial increase in credit hours and faculty staff-years compared to program enrollment between fiscal years 1994 and 1995.

Philosophy and Religion

Access and Capacity

In 1995, nine public universities in Illinois offered nine bachelor's programs in philosophy. The University of Illinois at Urbana-Champaign also offered a B.A. in Religious Studies. Among independent institutions, 34 offered 56 bachelor's programs in philosophy or religion. (Religious vocation programs offered by independent institutions--i.e., theology, divinity, religious education, and pastoral counseling--are not included in this review.) At the master's level, four public universities and eight independent institutions offered 12 programs in philosophy or religion. For the most part, these programs prepare students for doctoral programs. At the doctoral level, three public universities and five private universities offered 10 programs. The University of Illinois at Urbana program has concentrations in the history of philosophy, epistemology, and ethics and value theory.

Since the beginning of the P•Q•P initiative in 1991, one bachelor's program in religion and one master's program in philosophy were eliminated. The November 1993 P•Q•P report noted that student demand and degree production were low compared with other undergraduate programs and that the cost of doctoral programs was high compared with other doctoral programs. Since then, enrollments and degrees granted have increased at the undergraduate level, but costs continue to be higher than average at the doctoral level. In fall 1995, there were 936 students enrolled in bachelor's philosophy programs, a slight increase of 3.8 percent since fall 1991. Master's enrollment increased by 33 percent, primarily due to increases at one independent institution, for a total enrollment of 268 in fall 1995. Enrollment in doctoral programs declined by 7.2 percent since 1991 to 296 in fall 1995.

The contributions of philosophy programs to other degree programs and to general education are important. Nonetheless, the number of majors in philosophy is small compared with the number of majors in other liberal arts programs. In their program reviews, public universities should provide evidence of sufficient depth and breadth of advanced undergraduate and graduate courses to ensure quality and timely degree completion.

Occupational Supply and Demand

The public university baccalaureate follow-up surveys of 1984, 1988, and 1991 graduates revealed that undergraduates who major in the various humanities fields find employment at levels similar to students from other undergraduate majors. Ph.D. recipients may not be so fortunate, however. Universities that offer the Ph.D. should examine their programs in light of the information that, nationally, there are twice as many Ph.D. job candidates as there are openings. Specifically, universities should describe how Ph.D. candidates are prepared for the teaching role at an array of educational institutions, should report placement rates in tenurable and nontenurable academic positions and in non-academic jobs, and should specify plans to reduce capacity.

Costs and Instructional Productivity

For philosophy programs, the average cost per credit hour is 43 percent higher than all disciplines at the master's level. Costs at the doctoral level are also very high. Universities should examine the reasons for the high costs and make adjustments as necessary--especially in light of changes in credit hours and faculty assignments. Costs at the undergraduate level should also be examined where costs have risen faster than average.

Psychology

Access and Capacity

In fall 1995, 12 public universities and 38 independent institutions offered 57 baccalaureate programs in psychology. At the master's level, 10 public universities and 19 independent institutions offered 50 programs, with specializations in clinical, counseling, cognitive, developmental, experimental, industrial, physiological, social, and school psychology. Among public universities, two programs offer specializations in school psychology, and six programs offer specializations in clinical or counseling psychology. There are also four specialist degrees in school psychology at public universities. Five public universities and 13 independent institutions offered 31 doctoral degrees in psychology. Six of these programs are Doctor of Psychology degrees (Psy.D.) and one is an Ed.D. in School Psychology (all at independent institutions). Ph.D. programs at public universities focus on clinical, counseling, and school psychology. The program at the University of Illinois at Urbana-Champaign has a comprehensive selection of specialties. In fall 1995, there were 10,015 undergraduate students enrolled in psychology programs at all institutions, an increase of 9.5 percent since 1991. Enrollment in master's and advanced certificate programs increased by 33 percent to 2,118. Doctoral enrollment also increased in the past five years--to 2,072 in fall 1995.

In November 1995, the Board of Higher Education endorsed an articulation agreement which was developed by psychology faculty members from across the state as part of the Illinois Articulation Initiative. The agreement can be found in the November 7, 1995 board item, *The Illinois Articulation Initiative: Articulation in Baccalaureate Majors*. In their reviews of psychology programs, universities should examine the goals of the Illinois Articulation Initiative and report how they are working to ease the transfer of students who wish to major in psychology.

Occupational Supply and Demand

Ten public universities offer graduate work in psychology, with most programs preparing graduates for clinical or counseling work. Information from the American Psychological Association suggests that, although the unemployment rate among psychologists is very low, many of those who earned doctorates in 1993 reported they were underemployed. In their reviews of graduate programs, public universities should examine their objectives for preparing graduate students for academic, counseling, and clinical occupations and report their success in placing students in desired positions. Public universities should also report the results and analysis of graduate follow-up surveys to determine the success of undergraduates in securing jobs or in continuing their educations.

Costs and Instructional Productivity

At some universities, both student course enrollment and faculty staff-years in psychology decreased, but overall discipline unit costs increased since fiscal year 1992, primarily at the graduate level. All universities should examine their costs in relationship to credit hours produced and faculty assignments. Universities should also examine resource allocation when unit costs greatly deviate from the all-university average.

Transportation

Access and Capacity

The field of transportation encompasses jobs in aircraft piloting, water piloting, rail, and other motor vehicle transportation, such as bus and truck driving. Many transportation occupations are learned on the job or in apprenticeships, except for aircraft piloting or aviation management occupations, for which a certificate or degree is required. The Board's 1992 statewide analysis of the

transportation field as part of the P•Q•P initiative found that public university programs in transportation--limited to programs in aviation flight and aviation management--exhibited moderate program demand, low centrality, and high program costs.

Public universities and independent colleges and universities offer two certificate, six associate, ten baccalaureate, and one master's degree program in aviation flight or aviation management. In addition, community colleges also offer programs in airplane piloting, aviation management, and truck or commercial vehicle operation. Certificate programs are offered by the University of Illinois at Urbana-Champaign, several community colleges, and Parks College of St. Louis University. Four bachelor's programs at independent institutions were recently eliminated, and two active programs have reported no enrollment or degrees for the past five years. Southern Illinois University at Carbondale was approved to offer a master's degree in aviation administration but has not yet implemented it. Non-degree granting institutions also provide training in transportation fields.

Although enrollments in associate and baccalaureate degree programs in aviation flight and aviation management declined over the past five years, the total number of degrees granted increased. Southern Illinois University at Carbondale maintains the highest enrollments in its A.A.S. in Aviation Flight and B.S. in Aviation Management programs (at 246 and 334, respectively, in fall 1995). Parks College of St. Louis University has the second highest enrollment, with 328 students in three programs. Parks College, which plans to eliminate all of its aviation programs in Illinois, reported enrollment in only three of its nine programs in fall 1995.

Community college enrollments are increasing slightly in certificate, yet declining in air transportation associate degree programs. Belleville Area College and Kankakee Community College offer pilot training degree programs, with Belleville Area College granting 21 associate degrees in fiscal year 1994 and Kankakee only one. Through a contractual agreement with the University of Illinois at Urbana, Lincoln Land Community College, as the lead college in a community college consortium, offers the associate degree in aviation management and granted three degrees in 1994 as part of the total 25 associate degrees awarded by community colleges--double the number awarded in 1991.

Occupational Supply and Demand

Pilots and flight engineers must hold an appropriate Federal Aviation Administration (FAA) certificate that includes minimum flying time and flight training, the exact requirements dependent upon the type of certification. Currently, airlines are seeking applicants with many more hours of flight time than the minimum FAA requirements, as well as a bachelor's degree and experience in jet and turbine-powered aircraft.

The number of programs, and enrollments, in aviation flight and management decreased over the past five years. Although current occupational projections show a slight surplus of pilots, program closures by Parks College may result in a shortage. With deregulation of the airline industry and downsizing of military programs, universities are asked to consider the impact of these changes on their programs.

Costs and Instructional Productivity

The unit cost of aviation flight programs differs significantly between the University of Illinois at Urbana-Champaign and Southern Illinois University at Carbondale, despite similar credit hour production. Both universities should examine costs to assure they are commensurate with both quality and productivity.

Liberal Arts and Studies

Access and Capacity

The category of liberal arts and studies consists of general programs in the liberal arts and sciences. At the associate degree level, independent institutions offer the Associate in Arts and Associate in Science degree programs comparable to public community college programs. At the baccalaureate and master's level, interdisciplinary humanities programs, individually designed majors, and capstone programs for adult students are classified in this category.

Independent institutions offer the majority of programs: two certificate, 12 associate, 44 baccalaureate, 13 master's, and one doctoral program. Associate degree enrollments decreased almost 25 percent between 1991 and 1995, while the number of degrees granted rose slightly. In contrast, baccalaureate and master's enrollments and degrees granted by independent institutions rose considerably, with Columbia College Chicago and DePaul University awarding 82 percent of the 1,524 baccalaureate degrees awarded by independent institutions in fiscal year 1995.

Public universities currently offer 17 bachelor's and one master's degree program, with at least one offered by each of the 12 public universities. Bachelor's enrollment increased four percent, from 2,847 in fall 1991 to 2,966 in fall 1995, and the number of degrees granted rose seven percent, from 1,060 in fiscal year 1991 to 1,131 in fiscal year 1995. In the 1992 P•Q•P *Statewide Analysis of the Productivity of Instructional Units at Public Universities*, the review of individualized programs raised concerns about quality and recommended that public universities examine programs in this area and eliminate those found to be of low quality. As a result, Northeastern Illinois University eliminated its B.A. in the Kaskaskia Program, Southern Illinois University at Carbondale eliminated its B.A. and B.S. in Special Major, and the University of Illinois at Springfield restructured and retitled its B.A. in Individual Option to become the B.A. in Liberal Studies. Although 10 bachelor's programs were eliminated since 1991, three public universities offer two or more programs that provide individualized opportunities. Those universities with more than one program need to evaluate each, considering both need and long-term viability. A reduction in number of programs should be considered.

The largest public university program is the Board of Governors Bachelor of Arts degree, an individualized program providing adults an opportunity to complete a bachelor's degree. Offered at Chicago State, Eastern Illinois, Governors State, Northeastern Illinois, and Western Illinois Universities, the Board of Governors Bachelor of Arts degree accounts for 84 percent of public university enrollment and 79 percent of bachelor's degrees granted in this category. In some universities, this is the largest program offered. The universities offering the program are asked to review the maintenance of quality standards, especially program governance, admission requirements, standards for student academic progress, assessment standards and procedures for granting credit for life experiences or prior learning, and employment patterns of graduates.

Costs and Instructional Productivity

The average cost per undergraduate credit hour at public universities in liberal studies is slightly more than the all-discipline average, increasing 33 percent at the lower-division level and decreasing 10 percent at the upper-division level between fiscal years 1992 and 1995. Northeastern Illinois University, the University of Illinois at Urbana-Champaign, and the University of Illinois at Springfield reported undergraduate costs significantly above the average. Costs at the master's level decreased by 22 percent since 1992, while doctoral-level costs increased 11 percent. In reviewing these programs, public universities need to consider the growth of some programs beyond the unit's ability to adequately support the students enrolled, while ensuring program quality.